

ABSTRACT OF THE DISCLOSURE

A hydraulic press apparatus comprises: a lower plate and an upper plate adapted to be driven toward the lower plate via operation of a motion a position control device; a
5 hollow cylinder under the lower plate, the hollow cylinder having an upper edge tightly engaged with a lower surface of the lower plate; a guide column connected to the upper plate, the guide column having a lower end portion that defines a rod for a first piston adapted to slide within the hollow cylinder, and the guide column defining an inner cylindrical cavity that extends through the first piston, with the inner cylindrical cavity
10 being filled with hydraulic fluid; a hole extending through the lower plate, the hole being adapted to slidably accommodate said guide column; an aperture in a side surface of the hollow cylinder, the aperture allowing a volume defined between the lower plate and the first piston to communicate with a hydraulic device that is adapted to apply a hydraulic pressure within the volume when the first piston is in a lower position; a plunger piston
15 adapted to slide within the inner cylindrical cavity, the plunger piston including an upper cylindrical portion that has a diameter such that the upper cylindrical portion is capable of plugging the inner cylindrical cavity, the plunger piston also including a lower portion that has a diameter smaller than the diameter of the upper cylindrical portion so as to prevent the lower portion from contacting walls defining the inner cylindrical cavity; and a
20 through-bore allowing the inner cylindrical cavity to communicate with the volume when the upper cylindrical portion is at a level that is beneath a level of the through-bore.